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Brief Report

Systematic review of the impact of the COVID-19 pandemic on suicidal behaviour amongst health and social care workers across the world

Emily Eyles [a,b,*], Paul Moran [b,c], Chukwudi Okolie [d], Dana Dekel [e], Catherine Macleod-Hall [b], Roger T. Webb [f,g], Lena Schmidt [b,h], Duleeka Knipe [b], Mark Sinyor [i,j], Luke A. McGuinness [b], Ella Arensman [k], Keith Hawton [l,m], Rory C. O'Connor [n], Nav Kapur [f,g,o], Siobhan O'Neill [p], Babatunde Olorisade [b], Hung-Yuan Cheng [b], Julian P.T. Higgins [a,b,c,1], Ann John [d,e,1], David Gunnell [b,c,1]

[a] National Institute for Health Research Applied Research Collaboration West (NIHR ARC West) at University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, UK
[b] Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK
[c] National Institute for Health Research Biomedical Research Centre at the University Hospitals Bristol, NHS Foundation Trust and the University of Bristol, Bristol, UK
[d] Public Health Wales NHS Trust, Swansea, UK
[e] Population Psychiatry, Suicide and Informatics, Swansea University, Swansea, UK
[f] Division of Psychology and Mental Health, University of Manchester, Manchester, UK
[g] NIHR Greater Manchester Patient Safety Translational Research Centre, Manchester, UK
[h] Sciome LLC, Research Triangle Park, NC, USA
[i] Sunnybrook Health Sciences Centre, Toronto, Canada
[j] Institute of Medical Science, University of Toronto, Canada
[k] School of Public Health and National Suicide Research Foundation, University College Cork, Cork, Ireland
[l] Centre for Suicide Research, University Department of Psychiatry, University of Oxford, Oxford, UK
[m] Oxford Health NHS Foundation Trust, Oxford, UK
[n] Institute of Health & Wellbeing, University of Glasgow, Glasgow, UK
[o] Greater Manchester Mental Health NHS Foundation Trust, Manchester, UK
[p] School of Psychology, Ulster University, Coleraine, UK

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ABSTRACT

Background: The COVID-19 pandemic has had an impact on the mental health of healthcare and social care workers, and its potential effect on suicidal thoughts and behaviour is of particular concern.
Methods: This systematic review identified and appraised the published literature that has reported on the impact of COVID-19 on suicidal thoughts and behaviour and self-harm amongst healthcare and social care workers worldwide up to May 31, 2021.
Results: Out of 37 potentially relevant papers identified, ten met our eligibility criteria. Our review has highlighted that the impact of COVID-19 has varied as a function of setting, working relationships, occupational roles, and psychiatric comorbidities.
Limitations: There have been no completed cohort studies comparing pre- and post-pandemic suicidal thoughts and behaviours. It is possible some papers may have been missed in the search.
Conclusions: The current quality of evidence pertaining to suicidal behaviour in healthcare workers is poor, and evidence is entirely absent for those working in social care. The clinical relevance of this work is to bring attention to what evidence exists, and to encourage, in practice, proactive approaches to interventions for improving healthcare and social care worker mental health.

* Corresponding author at: National Institute for Health Research Applied Research Collaboration West (NIHR ARC West) at University Hospitals Bristol NHS Foundation Trust, Bristol, UK.
E-mail address: emily.eyles@bristol.ac.uk (E. Eyles).
[1] These authors equally contributed to this work.

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1. Background

The COVID-19 pandemic has caused extensive mortality and morbidity, with huge economic and social impacts throughout the world. As of May 20, 2021, there have been 163,738,674 reported cases of COVID-19 and 3,384,750 deaths worldwide (ECDC, 2021). The mental health impact on healthcare and social care workers is of particular concern (Chigwedere et al., 2021; Gold, 2020). Specific stressors on Healthcare workers and social care workers include worries about their own and their family's infection risk and the stigma this may entail (Bruffaerts et al., 2021; Muller et al., 2020; Qi et al., 2020; Xu et al., 2021), concerns about the availability and adequacy of personal protective equipment (Bruffaerts et al., 2021; Chung and Yeung, 2020), increased workloads and stress (Hong et al., 2021), having to make difficult decisions about prioritising care for seriously ill patients (moral injury) (Mortier et al., 2021; Williamson et al., 2020), and lack of support from colleagues and authorities (Hong et al., 2021). A rapid systematic review showed that mental health problems were commonly reported by healthcare workers during the pandemic, but the certainty of the estimates was assessed as being very low (Muller et al., 2020). In addition, most studies did not have comparative data, either to the general population, or to pre-pandemic mental health status (Muller et al., 2020).

Certain subpopulations of healthcare workers are known to be at elevated risk for suicide, particularly nurses and carers (Windsor-Shellard and Gunnell, 2019). As part of a larger 'living' systematic review (LSR (John et al., 2020a)), we set out to identify and appraise the current published literature investigating the impact of the COVID-19 pandemic on suicidal thoughts and behaviours and self-harm amongst healthcare and social care workers.

2. Methods

In the larger overarching LSR, automated system for literature retrieval was used to carry out systematic searches. It draws papers from several sources, such as PubMed, into a database, with initial reviewers screening daily, passing on to expert reviewers for assessment and data extraction (John et al., 2020a). Preprints, papers in languages other than English, and data reports were included. The outcomes of interest were suicide deaths, suicidal thoughts and behaviours, self-harm, and self-harm ideation. Further information on the methods is reported elsewhere (John et al., 2020b).

In this study, we examined the evidence specifically relating to healthcare and social care workers, published up to May 31, 2021. To be eligible for inclusion in the review, the study must go beyond merely reporting prevalence estimates at a single time point and attempted to examine associations between population characteristics and suicidal behaviour. Further, the study should meet one or more of the following criteria. First, the paper presented comparative data from another population, or on the same group from an antecedent pre-pandemic period. Second, the sample was deemed to be sufficiently large to derive estimates with reasonable precision. Third, the sampling strategy included elements of random sampling to minimise election bias. Fourth, a validated questionnaire was used to identify cases for each outcome. We excluded case series based on news reports of suicide deaths or attempts.

3. Results

Thirty-seven papers were initially identified, twenty-seven of which failed to meet the inclusion criteria. All papers are summarised in Table 1 in Appendix A. Ten studies met our inclusion criteria and were deemed to contribute novel information about suicidal behaviour amongst healthcare workers and social care workers (Bruffaerts et al., 2021; Campo-Arias et al., 2021; Hong et al., 2021; Mortier et al., 2021; Murata et al., 2021; Qi et al., 2020; Robles et al., 2020; Sahimi et al., 2021; Xu et al., 2021; Zhou et al., 2020). All ten studies were cross-sectional, although two studies (Bruffaerts et al., 2021; Mortier et al., 2021) are cohorts that plan subsequent follow-up assessments. All included studies described outcomes from a single country: Belgium (Bruffaerts et al., 2021), China (four studies) (Hong et al., 2021; Qi et al., 2020; Xu et al., 2021; Zhou et al., 2020), Mexico (Robles et al., 2020), Malaysia (Sahimi et al., 2021), Colombia (Campo-Arias et al., 2021), the USA (Murata et al., 2021), and Spain (Mortier et al., 2021). Six studies focused on the mental health of healthcare workers specifically in hospital settings. We did not identify any studies reporting on suicidal thoughts and behaviour or self-harm amongst social care workers. Outcomes included suicidal thoughts, suicidal thoughts and behaviours, and self-harm or self-harm ideation. A variety of healthcare workers professions were studied, including doctors, nurses, paramedics, and in some studies comparisons were made between frontline and non-frontline healthcare workers.

Qi et al. (2020) found no difference in the prevalence of suicidal thoughts between 1-to-1 age and gender matched samples of frontline and non-frontline healthcare workers in China ($n = 2346$). Moreover, Murata et al. (2021), examining US data ($n = 4909$), determined that healthcare workers were significantly less likely to report suicidal thoughts and behaviours than other occupational groups. A similar result was found by Zhou et al. (2020) in China ($n = 1705$), where no significant difference was identified in suicide risk between healthcare workers and the general population. In Mexico, Robles et al. (2020) found that frontline healthcare workers in centres specifically allocated to caring for COVID-19 patients had higher levels of suicidal thoughts than non-frontline healthcare workers in these locations. However, no difference in the prevalence of suicidal thoughts in healthcare workers in COVID-19 healthcare settings versus settings not caring for COVID-19 patients was found, meaning it is likely working directly with patients that is most impactful. Furthermore, the prevalence of suicidal thoughts and behaviours in paramedics was statistically higher than that in other professions (Robles et al., 2020). The samples examined by Robles et al. (2020) comprised around 1% of all Mexican healthcare workers in each profession examined; a key weakness of this study is that a convenience sample was examined. Campo-Arais et al. (2021) found that experiences of perceived discrimination for being a healthcare worker during the pandemic were correlated with suicide risk in nursing assistants and physicians, but this study did not compare suicide risk between professional groups.

In terms of further risk factors, Hong et al. (2021) studied a population of 'frontline' registered nurses working in Chongqing, China ($n = 4692$). Insufficient support from the hospital authority was associated with suicidal thoughts, and lower job stress appeared to have a protective association, yet it should be noted that the analyses were not adjusted for any putative confounders, such as age or gender. In the same municipality, Xu et al. (2021) described risk factors for suicidal and self-harm ideation amongst 11,507 healthcare workers from 48 hospitals, notably these were normal or poor self-rated health status, COVID-19 infection in relatives, poor familial relationships, and psychological needs and comorbidities. Sahimi et al. (2021), in Malaysia ($n = 171$), found that mild and moderate to severe clinical depression were associated with higher odds of suicidal thoughts, and greater than ten years of service was associated with a reduction in the odds of suicidal thoughts.

Two studies examined the possible link between suicidal thoughts and behaviours and COVID-19 infection amongst healthcare workers. Bruffaerts et al. (2021) examined 30-day prevalence of suicidal thoughts and behaviours at three hospital sites in Belgium ($n = 6409$), and detected a strong, significant association between suicidal thoughts and behaviours and hospitalisation with COVID-19 infection amongst healthcare workers, but not in the case of less severe COVID-19 infection. One key limitation of the study was the absence of validated diagnostic information on COVID-19 infection status. Mortier et al. (2021) reported initial findings of a large cohort study of healthcare

workers from 10 hospitals in 4 regions of Spain ($n = 5450$) and found that, for any suicidal thoughts and behaviours, the frequency of exposure to COVID-19 patients was related to an increase in the odds, but, unlike Bruffaerts et al. (2021), no association was found with suicidal thoughts and behaviours and hospitalisation with COVID-19.

4. Discussion, limitations, and conclusions

Similar to findings on the emergent literature on other mental health outcomes in relation to the pandemic (Muller et al., 2020), the current quality of evidence examining suicidal thoughts and behaviours in healthcare social care workers is poor. Of the 37 papers that were identified, 27 either utilised a case series or cross-sectional study design, and often only reported prevalence at one time point only. Some studies did not clearly report their sampling frame or strategy, and 21 applied convenience sampling approaches, which has been flagged as a particular concern affecting mental health research related to the pandemic (Pierce et al., 2020). From what evidence is available, it would appear that setting, e.g. working directly with COVID-19 patients and having poor working conditions, is a risk factor, as well as acquiring and subsequently being hospitalised with COVID-19.

Routinely collected datasets that enable estimation of suicide rates are unavailable for research purposes until several months after the final observation date, and this may partially explain the paucity of current evidence. Notwithstanding, we judge the quality of published literature to be disappointingly poor. Mortier et al. (2021) cohort study is a notable exception as it has the potential to generate longitudinal data on suicidal thoughts and behaviours in healthcare workers. The absence of any published data on social care workers is particularly striking.

One limitation to this study is that some papers may have been missed by the search, though many databases have been included. Papers in languages other than English were also assessed, but it is possible that some may have been excluded in error. Further, some papers were not accessible, and assessed solely based on their abstract (John et al., 2020a).

There is evidently a need for more timely evidence and robustly conducted studies in this field. The need for data on social care workers is particularly pressing, given that it is increasingly clear that social care workers have come under comparable pressures to other 'front-line' workers and in large numbers (Hussein et al., 2020; Shembavnekar et al., 2021). Furthermore, if effective suicide prevention measures are to be put in place, we need to better understand the range of risk and protective factors. These measures must include increasing knowledge about which occupational groups are most at risk of suicidal thoughts and behaviour, how the risks experienced by different occupational groups evolve over time, and how COVID-19 and vaccination status might impact this risk. The clinical relevance of this work is to highlight the evidence that exists, and to therefore encourage a proactive approach to interventions and strategies for improving healthcare and social care worker mental health, particularly with respect to managing stress, suicidal thoughts, and process trauma.

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CRediT authorship contribution statement

Emily Eyles: Data curation, Resources, Formal analysis, Writing – original draft, Validation. **Paul Moran:** Formal analysis, Writing – original draft, Supervision, Writing – review & editing, Validation. **Chukwudi Okolie:** Data curation, Formal analysis, Writing – review & editing, Validation. **Dana Dekel:** Data curation, Formal analysis, Writing – review & editing, Validation. **Catherine Macleod-Hall:** Data curation, Formal analysis, Writing – review & editing, Validation. **Roger T. Webb:** Formal analysis, Investigation, Writing – review & editing, Validation. **Lena Schmidt:** Software, Data curation, Writing – review & editing, Validation. **Duleeka Knipe:** Formal analysis, Investigation, Writing – review & editing, Validation. **Mark Sinyor:** Formal analysis, Investigation, Writing – review & editing, Validation. **Luke A. McGuinness:** Software, Data curation, Writing – review & editing, Validation. **Ella Arensman:** Formal analysis, Investigation, Writing – review & editing, Validation. **Keith Hawton:** Formal analysis, Investigation, Writing – review & editing, Validation. **Rory C. O'Connor:** Formal analysis, Investigation, Writing – review & editing, Validation. **Nav Kapur:** Formal analysis, Investigation, Writing – review & editing, Validation. **Siobhan O'Neill:** Formal analysis, Investigation, Writing – review & editing, Validation. **Babatunde Olorisade:** Software, Data curation, Writing – review & editing, Validation. **Hung-Yuan Cheng:** Formal analysis, Investigation, Writing – review & editing, Validation. **Julian P.T. Higgins:** Software, Data curation, Writing – review & editing, Conceptualization, Project administration, Supervision, Validation. **Ann John:** Conceptualization, Project administration, Supervision, Writing – review & editing, Validation. **David Gunnell:** Conceptualization, Project administration, Supervision, Writing – review & editing, Validation.

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Declaration of Competing Interest

All authors declare that they have no conflicts of interest.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jadr.2021.100271.

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